

WHAT IS CLAIMED IS:

1. An optical disk device, comprising:

an optical head which emits a laser light to
an optical disk having a recording layer and receives
5 a reflection light to carry out one of a recording
process and reproduction process;

a detecting unit which detects a distribution of a
recorded region and an unrecorded region of the optical
disk based on a reflection light received by the
10 optical head; and

a control unit which controls the optical head so
as to make access to a target position of a recording
layer of the optical disk while avoiding the unrecorded
region based on a distribution of a recorded region and
15 an unrecorded region detected by the detecting unit.

2. An optical disk device according to claim 1,
wherein the control unit sets a second target position
in front of the target position, moves the optical head
thereto, and then traces it to the target position.

20 3. An optical disk device according to claim 1,
wherein the control unit carries out an interlayer jump
while avoiding the unrecorded region when the optical
disk has a plurality of recording layers and the target
position is in a second recording layer different from
25 a first recording layer to which the optical head is
currently positioned.

4. An optical disk device according to claim 1,

wherein, in the case where the optical disk has a plurality of recording layers and the target position is in a second recording layer different from a first recording layer to which the optical head is currently positioned, and in the case where an access is made to the unrecorded region of the second recording layer when an interlayer jump is carried out at a currently accessed position, the control unit moves the optical head to a position of the first recording layer corresponding to a position at which the unrecorded region of the second recording layer does not exist, and then the optical head is jumped in an interlayer manner to be moved to the target position.

5. An optical disk device according to claim 1, wherein, in the case where the optical disk has a plurality of recording layers and the target position is in a second recording layer different from a first recording layer to which the optical head is currently positioned, and in the case where an access is made to the unrecorded region of the second recording layer when an interlayer jump is carried out at a currently accessed position, the control unit moves the optical head to a position of the first recording layer corresponding to a position at which the unrecorded region of the second recording layer does not exist, and the optical head is jumped in an interlayer manner and reaches a position at which the unrecorded region

of the second recording layer does not exist, and further a second target position is set in front of the target position, and the optical head is moved thereto to be traced to the target position.

5 6. An optical disk device according to claim 1, wherein, when the optical disk has a plurality of recording layers to be stacked and the detecting unit detects that the unrecorded region exists in a first recording layer to which the optical head is currently
10 positioned and that the target position exists in a second recording layer different from the first recording layer, the control unit makes access to the target position after an interlayer jump to the second recording layer is carried out without moving the
15 optical head in the first recording layer.

 7. An optical disk device according to claim 1, wherein, when the detecting unit detects that the optical head is currently positioned to the unrecorded region, the control unit controls the optical head to
20 be pulled-in to the recorded region at the inner periphery side than the optical head.

 8. An optical disk device according to claim 1, wherein, when the recording layer of the optical disk is a layer in which recording is carried out from
25 an outer periphery to an inner periphery, the control unit sets a second target position at the outer periphery side of the target position during an access

to the target position, and moves the optical head thereto, and then traces it to the target position.

9. An optical disk device according to claim 1, wherein, when the recording layer of the optical disk
5 has a land portion and a groove portion, the control unit sets a second target position positioned in front of the target position in accordance with a recording direction of the land portion and the groove portion during an access to the target position, moves the
10 optical head thereto, and then traces it to the target position.

10. An optical disk device, comprising:
an optical head which emits a laser light to
an optical disk having a recording layer and receives
15 a reflection light to carry out one of a recording process and reproduction process; and
a control unit which sets a second target position in front of the target position in order to cause the optical head to access a target position of a recording
20 layer of the optical disk, moves the optical head thereto, and then controls it to be traced to the target position.

11. An access method for an optical disk device comprising:
25 emitting a laser light to an optical disk having a recording layer and receiving a reflection light, thereby detecting a distribution of a recorded region

and an unrecorded region of the optical disk based on a reflection light received by an optical head for carrying out one of a recording process and reproduction process; and

5 controlling the optical head so as to access a target position of a recording layer of the optical disk while avoiding the unrecorded region based on the detected distribution of a recorded region and an unrecorded region.

10 12. An access method for an optical disk device according to claim 11, wherein control of the optical head sets a second target position in front of the target position, moves the optical head thereto, and then traces it to the target position.

15 13. An access method for an optical disk device according to claim 11, wherein, when the optical disk has a plurality of recording layers and the target position is in a second recording layer different from a first recording layer to which the optical head is
20 currently positioned, control of the optical head carries out an interlayer jump while avoiding the unrecorded region.

 14. An access method for an optical disk device according to claim 11, wherein, in the case where the
25 optical disk has a plurality of recording layers and the target position is in a second recording layer different from a first recording layer to which the

optical head is currently positioned, and in the case where an access is made to the unrecorded region of the second recording layer when an interlayer jump is carried out at a currently accessed position, control
5 of the optical head moves the optical head to a position of the first recording layer corresponding to a position at which the unrecorded region of the second recording layer does not exist, carries out an interlayer jump of the optical head, and then moves
10 it to the target position.

15. An access method for an optical disk device according to claim 11, wherein, in the case where the optical disk has a plurality of recording layers and the target position is in a second recording layer
15 different from a first recording layer to which the optical head is currently positioned, and in the case where an access is made to the unrecorded region of the second recording layer when an interlayer jump is carried out at a currently accessed position,
20 control of the optical head moves the optical head to a position of the first recording layer corresponding to a position at which the unrecorded region of the second recording layer does not exist, carries out an interlayer jump of the optical head, and reaches
25 a position at which the unrecorded region of the second recording layer does not exist, and further the control of the optical head sets a second target position in

front of the target position, moves the optical head thereto, and then traces it to the target position.

16. An access method for an optical disk device according to claim 11, wherein, when the optical disk
5 has a plurality of recording layers to be stacked and it is detected that the unrecorded region exists in a first recording layer to which the optical head is currently positioned and that the target position exists in a second recording layer different from the
10 first recording layer, control of the optical head makes access to the target position after an interlayer jump to the second recording layer is carried out without moving the optical head in the first recording layer.

15 17. An access method for an optical disk device according to claim 11, wherein, when it is detected that the optical head is currently positioned to the unrecorded region, control of the optical head controls the optical head to be pulled-in to the recorded region
20 at the inner periphery side than the optical head.

18. An access method for an optical disk device according to claim 11, wherein, when the recording
layer of the optical disk is a layer in which recording is carried out from an outer periphery to an inner
25 periphery, control of the optical head sets a second target position at the outer periphery side of the target position during an access to the target

position, moves the optical head thereto, and then traces it to the target position.

19. An access method for an optical disk device according to claim 11, wherein, when the recording
5 layer of the optical disk is a layer in which recording is carried out from an outer periphery to an inner periphery and when it is detected that the optical head is currently positioned to the unrecorded region, control of the optical head controls the optical head
10 to be pulled-in to the recorded region at the inner periphery side or the outer periphery side than the optical head according to a recording scheme of the recording layer.

20. An access method for an optical disk device according to claim 11, wherein, when the recording
15 layer of the optical disk has a land portion and a groove portion, control of the optical head sets a second target position positioned in front of the target position in accordance with a recording
20 direction of the land portion and the groove portion during an access to the target position, moves the optical head thereto, and then traces it to the target position.

21. An access method for an optical disk device,
25 comprising:

when an optical head which emits a laser light to an optical disk having a recording layer and receives

a reflection light to carry out one of a recording process and reproduction process is caused to access a target position of a recording layer of the optical disk,

- 5 setting a second target position in front of the target position, moving the optical head thereto, and then controlling the optical head to trace to the target position.